

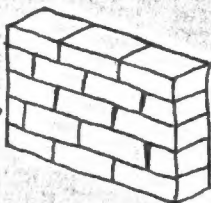
SINOWS NEWS

P.O. BOX 36, JOHNSON CITY, NY 13790

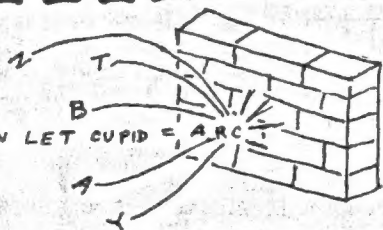
MAY 1984

THE BRICK WALL

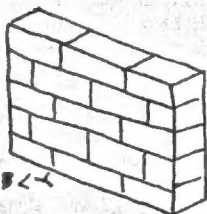
IF A=B THEN LET CUPID = ARCTAN BY



IF A=B THEN LET CUPID = ARC



IF A=B THEN =
ACK UNPREDICTABLE



IN YOUR COMPUTER

* PART 2. *

INSIDE:

- Page One - POKE BY PAUL
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DUES ARE NOW DUE - SEE PAGE ONE

POKE BY PAUL

by Paul Hill

The April meeting was well attended and much accomplished in short order. The dues are now \$8 per year for all members, effective immediately. The dues shall be paid once a year. Current members will have dues pro-rated to the new rate. Corresponding members (non-voting) will still pay \$6 per year for 10 issues of SINCUS NEWS.

AMENDMENT TO CHARTER: Article VI, Section II: Line 5 was approved to read "President may appoint to fill vacant offices. Vacancy of office to be determined by: resignation, lapse of dues or non-performance of office. Majority of Executive Committee to determine non-performance of office."

The Tape Library was voted an allowance of 5 tapes every month from blank tape sales. Later developments during the meeting may cause this to come up for a new motion for more blank tapes at the May meeting.

The motion to purchase 7 TIMEX-Sinclair 1000 programs was approved. Titles were selected but not noted here. Jerry Knickerbocker to order from E. Arthur Brown Co.

The duties of the Recording Secretary were expanded to handle the "Mail Order Help File". If any member has a bad deal, fraud or a problem with a mail-order business regarding TIMEX-Sinclair products, write out the problem in as few words as possible, have supporting documentation, and sign the complaint. The Recording Secretary will seek the story from the other side via certified mail/return receipt requested; reply within 30 days. The SINCUS NEWS will then carry both sides (if provided) for all to read. Also, the names and addresses of companies you are doing business with and are having good relations with will be printed in SINCUS NEWS, with your comments, on both the service and the product.

All of the above motions were passed by hand vote, unanimously, 32 members voting. Nominations were made and the ballot will be mailed to all members a week prior to the May meeting.

I nominated Gary Ennis for President for several reasons, but the top two are his enthusiasm and his enthusiasm. Gary goes all out for what he believes in, and he does it day in and day out. He does not let little things get in his way of getting the job done. Plus Gary has depth, he is "into" many different interests, pursuits, and hobbies, gardening, fishing, fish keeping, writing, sports, and oh yeah - computers! (And

those are just a couple of the ones I'm aware of.) Whoever should be the next president, and the next and the next, shall have my full support come hell or high water.

With TIMEX leaving a trail of broken businesses, magazines and promises in its wake, there are a few loose ends to pick up on and see what gives. If you haven't written someone about your concern as to what TIMEX did to you, then read Stan Veet's editorial in COMPUTER SHOPPER, page 12, May 1984, then sharpen the quill up and write Sinclair in the USA or Britain, TIMEX, SYNC, and then wait to see what happens next. Write to the editors of computer magazines and ask them to carry a column on Sinclair machines. When the mail gets flowing the powers to be get moving. So spend a few minutes, a stamp and voice your opinion.

For as many members as we have, there are as many reasons for owning a personal computer. My main concern is to learn all I can from the machine and others to better use it. The machine opens up a new field of individual expression, whether it be graphics, math, word processing or games. Much like the moving type gave the masses the books, IC's and micro-electronics gave the masses personal computers. We have the choice, use others' works of programming or develop our own. We can buy the computer or build our own. When we do something ourselves we learn a bit more about the machine and ourselves. Realizing many do not want to roll their own for many reasons, there do exist the human beings who want to do it "their way". For these individuals there should be a challenge to make life interesting, to see if there isn't a better way to do the same thing in a program, so to these beings I propose the formation of a program to challenge those that wish to participate. To those interested contact me and we'll hash out the idea and see what we can come up with. Maybe a monthly problem to solve, time the solutions to find the fastest, or fewest bytes used or most accurate or whatever. The prize, that feeling of having done something different, better, faster, and learned how others program the same thing a different way. The cost, whatever you put into it, less of course what you get out of it. Maybe we could even sell the ideas in a book form or whatever and become rich and famous, who knows?

Paul Hill

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SINCUS P.O. BOX 36 JOHNSON CITY
N.Y. 13790

**** TIMEX 2068 / EPSON RX80 ****

by Dave Schoenwetter

Using my new Timex 2068 for about a week before the April Sincus meeting I was very impressed with the new basic commands which were not available on the T/S 1000 and the keyboard was a great improvement for my "fumbling fingers", however I was itching to get my printer attached to the expansion slot. I was disappointed with the lack of technical information provided by the user manual as I contemplated how I could get "under the hood" without having my investment turn into a puff of smoke. Thanks to Wes with the technical information he provided at the meeting the next day I had my Epson RX-80 printing data from the 2068.

The 2068 uses ascii character codes for the character set which eliminated a decode table as was necessary with the T/S1000 so it was only a matter of the hardware connection which can be accomplished with four inexpensive integrated circuits. I chose to use a 74LS138,74LS32,74LS373 and a 74LS03 because I had all of them in my junk box. These circuits were sufficient to provide the necessary address decode and data bus isolation for the printer Centronics Interface. Power is provided by the 5 volt pin on the expansion connector. The port address is hex 87 as defined by the Timex Technical Memo #6 to be a Rd/Wr Centronics Interface. Write data is buffered by the 74LS373 and the read is gated by the 74LS03 open collector.

Driving the interface requires a machine code routine of 16 bytes and basic routines to format the data for line and column control. The basic commands COPY, L PRINT and L LIST will not work so all the printing will require a basic routine with a USR call to the machine code. This inconvenience is offset by the ability to print up to 80 columns with selectable type at speeds up to 100 characters per second. With the use of basic routines to provide the data all of the available features of the Epson printer can be used including the dot addressable graphics.

Using basic to format the data for the printer does slow the printer down to some extent. The printing time for this article using basic is about two minutes, the same data when printed using a machine code routine is less than 50 seconds. The equivalent basic routine for the COPY command requires the use of the SCREEN command and some for-next loops, because the display file contains pixel data unlike the T/S 1000 which contained the character code. As more information becomes available about the 2068, converting frequently used print routines to machine code will improve the printing speed and reduce the amount of basic programming.

For the last two weeks since I received my 2068 I have spent many entertaining hours learning the new basic commands and experimenting with some new hardware projects. My next project will be a modem to connect to the outside world. So far the 2068 appears to be a good machine for hardware "add on's". I'm hoping to hear from other users about their ideas and interests in hardware.

KNIGHTED COMPUTERS

707 Highland St.
Fulton, N.Y. 13069

MAY/JUNE 1984

HARDWARE AND SOFTWARE FOR THE TS2068

- - H A R D W A R E - -

AERCO Centronics Parallel Interface - makes most any Dot Matrix Printer compatible with the TS2068 - includes driver software and cable. \$64.95

AERCO Dual RS232 Interface - brings compatability with most letter quality printers and modems. TWO serial devices can be connected at a time, adjustable data transfer rate from 300 to 19200 baud. - - \$89.95

Inforunner RITEMAN 9X9 Dot Matrix letter quality printer (the one used to make this offer), 120 CPS, pin feed or friction feed allows you to use your own stationary or fan fold paper (tractor feed optional) \$349.95

FANASONIC DT1300D COLOR MONITOR (Switchable Composite or RGB) \$397.00

TS2040 PRINTERS (while they last) - - - - - \$69.95

TS2040 Printer Paper - three rolls per package - - \$5.95 (PER PACK)

- - S O F T W A R E - -

WORDPROCESSORS written by Robert Fingerle (on cassette)

TEXTWRITER 2000 A high capacity full color word processing program for the TS2068 computer and TS2040 Printer. It is similar in design to the TEXTWRITER 1000 program for the TS1000 computer that has had excellent reviews in computer publications. Powerful operation and edit functions that are logical and easy to learn. -- \$17.95

TEXTWRITER 2000+ Basically the same as TW2000, except for use with full size dot matrix printers (using the AERCO Centronics parallel interface). -- \$24.95

Cassettes from Softsync

PERSONAL ACCOUNTANT A powerful yet simple accounting program for household and small business use. Three programs in one - "BUDGET" (the accounting program) - "AMORTIZE" (loan payments and amortization tables, future values, and future value with annual increment) - "NAME" (the DATA BASE section for names and addresses) - - - - - \$19.95

VOICE CHESS A digitized voice speaks through the computers speaker, 6 levels of play, analyze, choose white or black - - - - \$22.95

GULPMAN 15 different mazes, 9 levels of play - - - - \$17.95

CYBERZONE fast game with 5 levels of play and exciting graphics - - \$17.95

ZUESS ASSEMBLER A programmers machine code aid - full Z80 mnemonic instruction set -- \$17.95

Cassettes from Quicksilva

ASTROBLASTER Full attack mode, 5 attack waves, 15 levels of play, rapid fire, meteor storms, changing aliens, plasma bolts, killer bombs, great sound effects - - - \$17.95

TIME GATE A 4D Space Time Sci-Fi Arcade Adventure. You're in control of the ship Void Runner with it's advanced sophisticated weaponry. Fast moving view & free training program for new recruits- - \$22.95

KNIGHTED COMPUTERS MAY/JUNE '84 PRICE LIST CONTINUED

SMUGGLER'S COVE Falling through a concealed cave entrance you find yourself caught in a fable full of horror and Black Beard's Treasure...An Historical Adventure with Hi-Res Graphics. -- \$22.95

XADOM Battle through a sophisticated alien maze in a search for the 'aartifact'. A unique 3-D arcade adventure. -- \$22.95

3D STRATEGY A Monster of an UNBEATABLE game! A 'State of the Art' program. A battle of Nerves and Wits; Faster than a speeding bullet!! 100% machine code version of 3D Tic Tac Toe. -- \$22.95

THE CHESS PLAYER Six levels of play, personality and speach. -- \$22.95

TRAXX An awesome game by Jeff Minter (Author of Gridrunner). Fly your ship around the grid, pulling the red elastic stream behind to dominate the squares. A game of unparalleled excitement. -- \$22.95

MINED OUT Bill the worm is trapped. The star of "Worm without a Cause" and "Worm Kong" etc. is trapped in the mine fields and harvest time is still three months away. The fair daasels who have come to rescue Bill have fallen into the same plight. The mines await, ominous, quiet, expectant. Will you be able to rescue Bill and friends? Varying levels of difficulty with scoring and high score features. -- \$22.95

LAST MINUTE CHANGE - - ASTROBLASTER NAME HAS BEEN CHANGED TO "CYBIRD"

Cassettes from TIMEX (while they last)

----(your choice) VU-CALC, VU-FILE, BUDGETER, OR AUTO ANALYZER -- \$16.95 each

----(your choice) Quadra Chart, Androids, Horace goes Skiing, Crazy Bugs, or Blind Alley -- \$12.95 each

----(your choice) Math Wizardry I, Math Wizardry II, States & Capitals, Wordcross, Word Play I, Word Play II, Spelling I, Guardian, Fun Golf, Dragmaster, Home Improvement Planner, or Personal Home Finance -- \$10.95 each

Cartridges from TIMEX (while they last)

FLIGHT SIMULATOR -- \$24.95 CRAZYBUGS -- \$19.95 ANDROIDS -- \$21.95 STATES AND CAPITALS -- \$19.95

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 SHIPPING AND HANDLING Continental USA \$3.00 per order.
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 707 HIGHLAND ST.
 FULTON, NEW YORK 13069

	SUB TOTAL
	NEW YORK RESIDENTS ADD 7% SALES TAX
	SHIPPING & HANDLING
	TOTAL

NOTE: The Title "ASTROBLASTER" (pg 1) has a new name (same program) -"CYBIRD"

USEFUL (?) PROGRAMS

If you're like me, using the computer means doing something useful with it. That is, if I'm going to write a program, it must be something useful or I'm learning something from the experience. Over the years I've been able to come up with two short programs that meet these criteria. The first searches for prime numbers and the second for right triangles whose sides are integers.

The first program is one I first wrote on my BALLEY ARCADE. It worked rather well there on just a few instructions because that computer only works in integer arithmetic. When I got my TIMEX, I found that it took a little more programming to convert mixed numbers into integers. The procedure is rather simple in that it takes a number "N" and divides it by all possible integers from 2 to N/2. If none of the answers is an integer, N is recorded as a prime number. The program gives you a chance at the beginning to tell it where to stop. It then prints the number 2 (which we know is a prime), and continues to go about it's thing. Things get pretty slow as it searches the larger numbers, since they require more calculations. My suggestion is that the program be run with the computer in the slow mode so you can watch the numbers appear as they're computed.

```
5 REM  A PROGRAM TO CALCULATE PRIME NUMBERS
10 PRINT "ENTER HIGHEST NUMBER TO BE USED."
15 INPUT E
20 PRINT "2 ";
25 FOR N=3 TO E STEP 2
30 LET A=2
40 LET B=N/A
42 LET C=INT B
50 LET D=D*A
60 IF C=N THEN NEXT N
70 IF A>N/2 THEN GOTO 150
80 LET A=A+1
90 GOTO 40
100 PRINT "DONE"
150 PRINT N;
155 PRINT " ";
160 NEXT N
170 PRINT "DONE"
```

Something that has fascinated mathematicians for some years, (well a few of us, anyway), is the fact that there exist a series of right triangles whose sides are integers; 3,4,5 for instance. Using the wisdom of Pythagoras, of A squared plus B squared equals C squared fame, I devised a routine to search out these elusive figures for me.

This program simply starts by asking you for limits on the size of the sides adjacent to the right angle, sides A and B. It then starts with A=2 and B=3 and puts them into the equation $(A*A)+(B*B)=C$. Next it checks to see if SQR C is a whole number. If it isn't, A is incremented and the search continues. Whenever SQR C is an integer the three sides are printed out, A is incremented and the program continues. The whole thing is speeded up by the simple expedient of checking for the case where A = B and, when true, increment B and reset A to 2. This prevents repeating triangles such as 3,4,5 as 4,3,5.

The list of triangles is rather interesting but we still get some redundancies such as 6,8,10 which is 3,4,5 multiplied by 2. Perhaps this could be eliminated by combining part of the prime numbers program to check that at least one side is a prime number. Another possible failure in this

program would occur at very large numbers, where round off error could hide the fact that SQR C is not really an integer. However, I doubt that anyone wants to investigate triangles that large.

Well, it's been fun and I hope you enjoy these programs as much as I did.

```
10 PRINT "THIS PROGRAM WILL CHECK FOR ALL"
20 PRINT "THE POSSIBLE RIGHT TRIANGLES OF"
30 PRINT "SIDES A B C WHERE A,B AND C"
40 PRINT "   ARE ALL INTEGERS."
50 PRINT "ENTER THE LARGEST NUMBER FOR SIDE A:"
60 INPUT F
70 PRINT "ENTER THE LARGEST NUMBER FOR SIDE B:"
80 INPUT F
81 CLS
82 PRINT "SIDE A      SIDE B      HYPOTENUSE"
83 LET B=3
84 LET G=0
85 LET A=2
90 LET C=(A*A)+(B*B)
100 LET H=SQR C
110 LET D=INT H
120 IF D*D=C THEN GOTO 300
130 LET A=A+1
140 IF A>F THEN GOTO 250
150 GOTO 90
250 LET B=B+1
260 IF B>F THEN GOTO 280
270 GOTO 88
280 LET G=1
300 PRINT TAB 5;A;TAB 15;B;TAB 25;D
310 IF G=0 THEN GOTO 250
320 PRINT "DONE"
```

Charlie Lecher
SINCUS

SINCUS NEWS is published by the Sinclair Computer Users Society. The group meets monthly on the THIRD Wednesday at 7:00 P.M. at the Vestal Public Library, Vestal Parkway - next to the Skylark Restaurant. Any article published herein is the sole opinion of the author and not necessarily the opinion of the Sinclair Computer Users Society. All correspondence regarding SINCUS NEWS should be directed to:

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Owego, New York 13827

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THE BRICK WALL IN YOUR COMPUTER

PART II

Last time we found that every BASIC for every computer contains a "brick wall" that can prevent the computer from doing what you want. Since the wall is different for every computer, we concentrated on the TS1000 and we found a couple of places where we could "smash into it". As mentioned last time, I don't consider this a "bug", since it absolutely must exist in some form. If there is a lot of available memory (and a lot of clever programmers to write the BASIC interpreter) the wall might be very hard to find, but it's in there somewhere!

To try to understand the wall, let's look at one of the problems presented last month. If we ENTER:

```
1 LET A=1
2 LET B=A
3 LET B=B/3
4 LET B=B*3
5 IF A=B THEN PRINT "EQUAL"
6 IF A>B THEN PRINT "NOT EQUAL"
```

and RUN the program, we get a surprising result. At the end, A=1 and B=1, so we should get "EQUAL" as an answer. Instead we get "NOT EQUAL". Curious. If we change the order of lines 3 and 4, which shouldn't change the answer, we get "equal" as an answer. Curiouser and curiouser. If, instead of changing lines 3 and 4, we transpose the A and B in line 5 (i.e. IF B=A THEN PRINT "EQUAL"), we will get BOTH "EQUAL" AND "NOT EQUAL"!!!!?

Rather than get involved in binary numbers right now, let's imagine a computer that really works in decimal. Now it's possible to specify a number that contains an infinite number of digits. Alas, we can't build a memory large enough to contain such a number, even with memory as cheap as it is these days. What we need to do is work out a scheme that lets us store numbers that can be either pretty large or pretty small, and hope that we never need to exceed the limit. We might do it with the following format:

```
EXPONENT  MANTISSA
  XX      .XXXX
```

The mantissa is a fraction with four decimal places. The exponent is a number that tells us how far to move the decimal point to the left or right. For example:

```
02 .1000 =10
51 .1000 =1 (with 50 zeroes)
00 .3720 =.37
-02 .1200 =.12000
05 .5432 =54,321
```

Get the idea? Note that in the last case there aren't enough digits to exactly represent the number. As such 54321 and 54320 would be exactly the same to the computer. This is the foundation of the "Brick Wall".

Now if we walk things through the program that gives us funny answers, we get in lines 1 and 2:

```
A=B=01 .1000 =1
```

In line 3 we divide 1 by 3. However, $1/3 = .333333...$ where the 3's go on forever. The computer shortens this to

```
00 .3333 =.3333
```

In line 4, we multiply this by 3 to get 00 .9999 =.9999. Note that .9999 is "NOT EQUAL" to 1, even though they're very close! Therefore, the computer prints "NOT EQUAL".

Now let's try the second case, where we change the order of lines 3 and 4. In line 3, we multiply by 3, where $3 \times 1 = 3 = 01 .3000$.

In line 4 we divide by 3, to get 01 .1000 =1. The result is still 1, so we get "equal" as an answer. Although the TS1000 does these contortions in binary and there are many more digits in a number, the same problem occurs. The "BRICK WALL" is revealed!

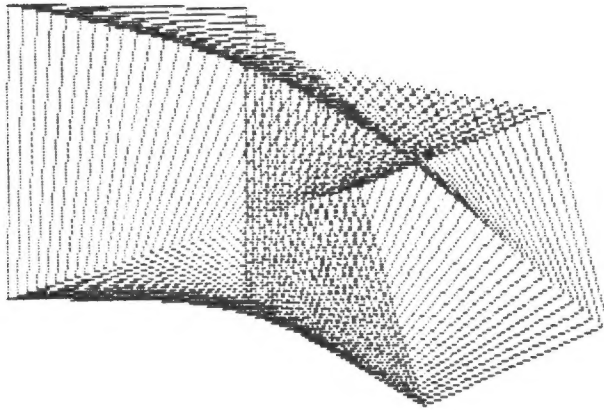
Could the BASIC interpreter have been rewritten so that the "EQUALS" test would pass if the number were merely "ALMOST EQUAL"? The answer is "Yes", in fact, some BASICs operate in this manner. It's possible for this reason that the TS2055 always gives "EQUAL" as an answer to this program. However, this can also have its problems, since there could be cases where it would falsely call two numbers equal, when they really should not be. The "brick wall" is still there; it's just moved to a different place!

We still haven't discussed the case where both "EQUAL" and "NOT EQUAL" appear together. Did I say that the TS1000 NEVER passes the "EQUALS" test when the numbers are almost equal? (No, I didn't, look again.) Apparently, "ALMOST EQUAL" might be good enough, depending on the order of the numbers being tested. If this seems unreasonable, then I'll have to concede this is more of a "bug" than a "BRICK WALL" problem. Nevertheless, it's a great bug. It's somewhat amusing to be able to show two numbers to be equal and not equal at the same time. If there are some kids in your neighborhood who are "too smart" with computers, show that problem to them. It'll put them in their place.

For space reasons, we'll have to cover the FOR loop problem next time, although there's enough information for the reader to figure it out if they haven't already done so. Also having thoroughly disgraced the TS1000 here, we'll continue to pick on the TS2055.

was brzoziowski

TIMEXLY TIPS

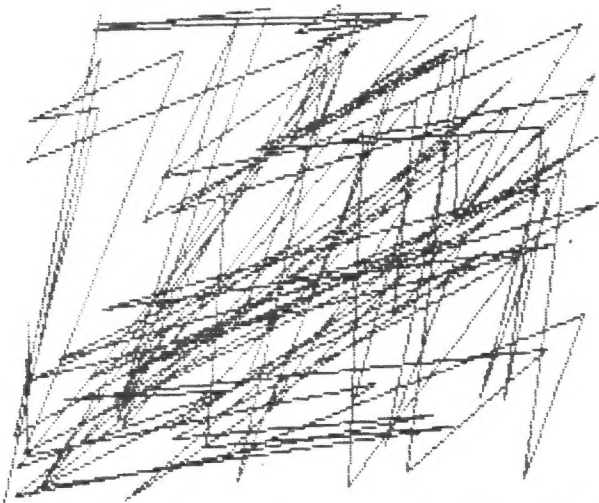


```

9 DIM R[100]
10 DIM ADJUST J,X,Y, AND STEP
20 LET X=0
30 LET Y=72
40 LET J=0
50 FOR I=100 TO -130 STEP -2
60 LET J=J+2
70 LET X=X+4
80 LET Y=Y+1
90 PLOT X,Y
100 DRAW J,I
110 DRAW I,-J
120 DRAW -J,-I
130 DRAW -I,J
140 NEXT I
150 PAUSE 30
160 COPY
170 LLIST

```

For
2068



```

10 DRAW AND+(PEEK 23677),AND+
(-PEEK 23678)
20 DRAW AND+(23675-PEEK 23677),R
ND+(1175-PEEK 23678)
30 GO TO 10

```

CONSIDER THIS!

As I write this, I have in front of me the silver colored pamphlet that came with my ZX-81 kit a long time ago. It's titled "Sinclair ZX-81 Software Catalog, do any of you old-timers remember it? It tells of incredibly primitive tapes of short BASIC programs that Sinclair Research had the gall to ask \$11.95 apiece for. I also have an issue of SYNTAX, dated about the same time, in which Sinclair is mentioned as having no intention of expanding its software line.

Back then, for about \$100, you had the privilege of assembling your own ZX-81; a machine somewhat less capable than the unexpanded TS1000. If you couldn't get it to work, you could send it to Sinclair with a fairly good fistful of money and they'd repair it for you. If we count inflation, then that repair charge alone could today buy you a TS1000, Rampack, and 3 pieces of software. How times have changed.

Yet those were the early days of SINCUS. A standing-room-only-crowd of enthusiasts packed every meeting, and no one complained of lack of support. We had our computers and there was lots to do. Since then the number of TIMEX-Sinclair owners has exploded, and the amount of third party support, even in these days following the "Timex Surprise", is far greater than we could have hoped for. At the same time I see an attitude of pessimism among many users, as though our club could dissolve at any moment, and as if our computers will vanish, simply because TIMEX doesn't sell them anymore.

Please don't forget that SINCUS thrived under far less support than we have today. We've learned a great deal since then, and our collective expertise is nothing less than awesome. Even if we were totally alone (which we're not), we could keep on going for a long, long time. There's still plenty to do.

Let's do it.

WES BRZOWSKI
SINCUS

ZK EXPRESS

by Gary Ennis

EDIT This is being typed on WORD SYNC II by Gesang Associates - a word processor for the ZX-81/TS1000 series. Hopefully they'll produce one shortly for the 2068, this is great. I'm using the large type format as it eats up space faster.

THIS IS:

LARGE TYPE-CAPITALS

large type-lower case

REGULAR UPPER CASE

regular lower

case-on

the

ZX-81/TS100!!!

See me for address on how to order.

NEW - the best news is that the TIMEX-Sinclair marketplace seems to be settling down a bit with so may 2068 being sold for \$99 several companies have decided to hang in there for a while. Many items are available now and in the near future. These include at least three modems, including what was to have been the TIMEX 2050 modem. RS232 and Centronics interfaces are available for the 2068 and the selection of compatible printers is getting a bit confusing. Did I see an interface for the 2068 that would permit hooking up a Radio Shack COLOR printer?

NEW GAME IN TOWN - thanks to Theo Koranyi for the idea, let's have a CHESS TOURNAMENT BETWEEN COMPUTERS!!!! We can get some help from local chess clubs and make it a competition between various makes! Let's have a trial run some Saturday in June. I can set it up at my

place in Owego. I have plenty of parking, electricity, and table space. I can provide a ZX-81 with TIMEX Chess, a 2068 with TIMEX Chess (Master Chess) and a 2068 with Soft Sync "VOIDE CHESS". I also should point out I don't play chess-I can move the pieces is about all!!!

So sign up now to participate, help, or just visit. You want some real exposure? Just don't make it the weekend of "Strawberry Festival"-June 23,I think.

THANKS TO KNIGHTED COMPUTERS for not only their participation in this issue of SINCUS NEWS but also their interest. It helps that one of the partners is an Owego kid! They not only bought the two page ad in this issue, but they also called me to fill me in some other info - specifically, they have a few 2068's, a few 2040 printers, and lots of other stuff - software, and hardware. I'd like to arrange a Saturday trip - they're just the other side of Syracuse!! Anyone interested? Call me at 687-2241 or 687-0598. And thanks to Ray from Knighted for calling me with the address on where to order the "Technical Manual" send your \$25 to:

TIMEX Materials Sales Division
P.O. Box 1378
Little Rock, Arkansas 72203

VERY INTERESTING!! See VIDEO REVIEW, May 1984, page 17 - Olive Sinclair announced his new TV receiver could be incorporated in a color TV set to make a one piece, 2,000 line high density video system that would cost only about \$700. That is essentially a satellite receiver!!

Many thanks to Rick Johnson of the Cincinnati Users Group for the information and the tape that he sent. It included the list of users groups that they have, plus some other "goodies". If you came to the meeting you saw some of them!

Personally, I am very pleased with the resurgence in our group. You know one of my philosophies has always been: "Yeah, though I walk through the valley of BIG BLUE, I shall fear no Peanuts!!!"

Out of towners reading this should know SINDUS is based in the original home of IBM!!

Anyway we have spent too much time mourning the potential TIMEX is giving up. As Wes says in TIMEXly Tips - there is much to do. And, in fact, we have more support than we had two years ago! So I hope you'll come the meetings much is happening.

Gary Ennis

FROM THE TRIANGLE TIME - SINCLAIR
USERS GROUP VIA CINCINNATI USERS

Here's a way of going through the display file and darkening each dot, then printing everything with ~~CODE~~ for a nice dark hard copy image. This phenomenal routine was developed for the TS2068 by Dick Scoville.

Here is the routine in hex addresses and Z80 instructions

```
F490 LD HL,0058 5800
F493 DEC HL
F494 LD A,H
F495 CP 40 64
F497 RET C
F498 LD A,(HL)
F499 XOR A
F49A OR (HL)
F49B LD (HL),A
F49C JP PS F490
```

And here is the hex code, starting it at address 52608:

```
21,00,58,2B,70,FE,40,DB,7E,1F,B8,77,18, and F5
```

And here is the BASIC/decimal POKE listing.

```
10 CLEAR 52607
15 LET a=52608
20 READ n
25 IF n=-1 THEN GO TO 50
30 POKE a,n
35 LET a=a+1
40 GO TO 20
50 STOP
60 DATA 33,0,68,43,124,254,64,216,126,31,182,119,24,245,-1
```

Type it, ~~RUN~~ it, then ~~CODE~~ and ~~RANDOMIZE~~ 52608. Behold a darker image. Now ~~COPY~~ it on the printer and BEHOLD PURE MAGIC

LATE NOTICE:

Many items are arriving as we go to press. Mail has been held up as a result of the butane RR car accident in Binghamton, so some things arrived too late for inclusion here. Coming to our meeting will insure that you get exposed to all of these things - like the program where the 2068 will play music, or the flag that you can POKE to set capital or lower case.

SO SEE YOU THERE NEXT MONTH!!!